

## Development of Reasoning Skills from a Piagetian Perspective

	PIAGET'S TERMS			REASONING CHARACTERIZED BY	IMPLICATIONS
	STAGE		TYPE OF REASONING		
Logical Thinker II	Formal Operations Approx 11+ & adults	Logical Full adult style reasoning	<b>Fully Logical</b> <i>Can reason hypotheticals and mentally manipulate two+ variables</i>	<ul style="list-style-type: none"> <li>- Adult logical processes – induction, deduction, conservation, seriation, hierarchical classification all used to solve problems and understand physical and social phenomena</li> <li>- Can take perspective of another and reason “as if”</li> </ul>	<ul style="list-style-type: none"> <li>- Can now solve abstract and hypothetical problems</li> <li>- Can think about thinking</li> <li>- <b>Understands relatively of rules and the concept of the “relative good.” Can alter rules with multiple variables considered.</b></li> </ul>
Logical Thinker I	Concrete Operations Approx 7-11	Logical Concepts rapidly forming, linking	<b>Beginning Logic</b>	<ul style="list-style-type: none"> <li>- Reasoning is not dominated by perception although not fully logical</li> <li>- Reversibility of operations: can compare observed states with mental expectations &amp; previous sequences - in reverse</li> <li>- De-centered, able to take viewpoint of others</li> <li>- Considers multiple variables in problem s-solving</li> </ul>	<ul style="list-style-type: none"> <li>- Can perform “if-then”, “either-or”</li> <li>- Observable efforts to combine and recombine information sets</li> <li>- Dis-equilibrium is observable-they can see that what is currently observed is not necessarily the ways things really are</li> <li>- Lots of speculation – “how come?”, “What if?”</li> <li>- <b>Desires rules to be absolute and invariant</b></li> </ul>
Fantasizer	Preoperational State II – Intuitive Approx 4-7 years	Pre-Logical Justifies from own perspective	<b>Intuitive</b> <i>Attempts to link things into cause/effect based on own whimsy. Asks “why” to determine associations &amp; cause/effect</i>	<ul style="list-style-type: none"> <li>- Personal experience begins to be mediated by concepts</li> <li>- Considers only one variable at a time in problem solving</li> <li>- Attempts to explain cause and effect but still perception bound</li> <li>- Still unable to accept idea that others think differently</li> </ul>	<ul style="list-style-type: none"> <li>- Beliefs can be easily shaken <u>or</u> rigidly held</li> <li>- No adult logic as of yet</li> <li>- Efforts to make sense of the world, establish cause/effect, but in initial stage and idiosyncratic</li> <li>- Inconsistencies due to perception bound reasoning</li> <li>- <b>Wants rules to adhere to personal in-the-moment needs, tries to persuade others his/her viewpoint is the correct one. Attempts to negotiate but limited perspective taking.</b></li> </ul>
Associater	Preoperational Stage 1 – Associative Approx 2-4 yrs.	Pre-Logical Associates Freely	<b>Associative</b> <i>Knows some actions occur in association but does not know what causes occurrences</i>	<ul style="list-style-type: none"> <li>- Reasoning is based only on memory of previous experiences or immediate perceptions</li> <li>- Child is unable to take the view point of others</li> <li>- Experiences trigger memories of earlier experiences</li> </ul>	<ul style="list-style-type: none"> <li>- “Seeing is believing”</li> <li>- Responses tend to be immediate with no cognitive mediation</li> <li>- Inconsistencies result from idiosyncrasies in experiences</li> <li>- No consistent cause and effect relationships, child just knows some things (objects/ideas) co-occur</li> <li>- <b>Accepts rules as absolutes, with protest or acceptance when adult gives the rule. Negotiation skill absent or barely emerging.</b></li> </ul>
“Foreseer”	Sensorimotor Stage 6 Approx 18-24 mo.	Pre-logical Mental Representation	<b>Emerging Mental Representation</b> <i>Has a mental image of what should occur when acting on objects and performs actions to confirm</i>	<ul style="list-style-type: none"> <li>- Begins to picture objects and events mentally</li> <li>- Foresight instead of trial and error</li> <li>- Imitates models not currently present in the environment</li> </ul>	<ul style="list-style-type: none"> <li>- Imitates observed routines</li> <li>- Uses materials to represent previous experiences and current mental images, e.g., household routines</li> <li>- Words as symbols is evolving</li> <li>- <b>Generalized rules not understood – Understands communication prosody (voice tones &amp; facial affect) and environmental cues more than language.</b></li> </ul>
“Put-er In-er”	Sensorimotor Stage 5 Approx 12 to 18 mo.	Pre-logical Action/Agent	<b>Tertiary Circular Reactions</b> <i>Tries out acting on objects, knows his/her actions cause an effect</i>	<ul style="list-style-type: none"> <li>- Trial and error problem solving</li> <li>- Imitation of a wide rang of models if currently present in the environment</li> <li>- Keen observer of actions and their results on objects; copies others’ actions</li> </ul>	<ul style="list-style-type: none"> <li>- Understands some objects have functions</li> <li>- Continually manipulating materials, mastering body movements and actions on objects</li> <li>- <b>No rules understood. Understands communication prosody (voice tones &amp; facial affect) and environmental cues more than language.</b></li> </ul>